SEP 23 2015

Quantum Environmental & Engineering Services, LLC

Quantum Environmental & Engineering Services, LLC.
126 Dante Road
Knoxville, Tennessee 37918
Telephone (865) 689-1395 Fax (865) 689-6844

Letter of Transmittal

Date: 9/23/15 | Job No. 500925.001

Attention: John West

Subject: Brushy Mountain Sanitary Sewer Conversion to storm sewer and outfall construction

To:
Tennessee Department of Environment and Conservation
3711 Middlebrook Pike
Knoxville, TN 37921

WE ARE SENDING YOU

- ☒ Attached
- ☐ Shop Drawings
- ☒ Prints
- ☐ Copy of Letter
- ☐ Change Order

☐ Under separate cover via _____ the following items:
☐ Plans ☐ Samples ☐ Specifications
☐ _____

COPIES	LAST DATE	NO.	DESCRIPTION
3	7/14/15		Proposed Storm Sewer Outlet – ARAP Permit application
1	7/22/15		Aquatic Resource Alteration Permit (ARAP) application

THESE ARE TRANSMITTED AS CHECKED BELOW:

- ☒ For approval
- ☐ For your use
- ☐ As requested
- ☐ For review and comment
- ☐ For Bids Due _____ 20___
- ☐ No exception taken
- ☐ Make corrections noted
- ☐ Rejected
- ☐ _____
- ☐ Revise and submit ____ copies
- ☐ Submit ____ copies for distribution
- ☐ Return ____ corrected prints
- ☐ Prints Returned After Loan to Us

REMARKS:

John,
Please call with any questions.

Thanks

COPY TO: Steve Westerman **Signed:** Joe Ferowich

SEP 2 3 2015

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

OFFICIAL STATE USE ONLY	Site #:		Permit #:	

Section 1. Applicant Information *(individual responsible for site, signs certification below)*

Applicant Name: Steven L Westerman				
Company: Tennessee Department of Correction		Signatory's Title or Position: Director, Office of Facilities Planning		
Mailing Address: Ground Floor, Rachel Jackson Building, 320 Sixth Avenue North		City: Nashville	State: TN	Zip: 37243
Phone: (616) 741-1000	Fax: (616)741-6579	E-mail: steven.westerman@tn.gov		

Section 2. Alternate Contact/Consultant Information (*a consultant is not required*)

Alternate Contact Name: Joseph Ferowich, P.E.				
Company: Quantum Environmental & Engineering Services, LLC		Title or Position: Project Manager		
Mailing Address: 126 Dante Road		City: Knoxville	State: TN	Zip: 37918
Phone: (865) 689-1395	Fax: (865)689-6844	E-mail:		

Section 3. Fee *(check appropriate box and submit requisite fee with application)*

☐ No Fee Submitted ☒ Fee Submitted with Application Amount Submitted: $ 0

Current fee schedules for Aquatic Resource Alteration Permit processing may be found at the Division of Water Resources webpage at http://www.tn.gov/environment/permits/arap.shtml or by calling (615) 532-0625. Make checks payable to "Treasurer, State of Tennessee".

Section 4. Project Details *(fill in information and check appropriate boxes)*

Site or Project Name: Brushy Mountain State Penitentiary		Nearest City, Town or Major Landmark: Petros, TN
Street Address or Location: Off Highway 116, Petros, TN		
County(ies): Morgan County	MS4 Jurisdiction:	Latitude (dd.dddd): 36.1013N Longitude (dd.dddd): 84.4466W

Resource Proposed for Alteration: ☒ Stream ☐ Wetland ☐ Reservoir

Name of Water Resource: Stockstill Creek

Brief Project Description (a more detailed description is required under Section 8):

Installation of a Stormwater Pipe Headwall to discharge stormwater into the Creek.

Does the proposed activity require approval from the U.S. Army Corps of Engineers, the Tennessee Valley Authority, or any other federal, state, or local government agency? ☐ Yes ☒ No

If Yes, provide the permit reference numbers: _____

Is the proposed activity associated with a larger common plan of development? ☐ Yes ☐ No

If Yes, submit site plans and identify the location and overall scope of the common plan of development. Plans attached? ☐ Yes ☐ No

If applicable, indicate any other federal, state, or local permit authorizations that the overall project site (common plan of development) has obtained in the past (i.e. construction general permit coverage and/or other ARAPs):

N/A

Section 5. Project Schedule *(fill in information and check appropriate boxes)*

Start date: August 15, 2015	Estimated end date: August 30,2015

Is any portion of the activity complete now? ☐ Yes ☒ No If yes, describe the extent of the completed portion:

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

The required information in Sections 6-11 must be submitted on a separate sheet(s) and submitted in the same numbered format as presented below. If any question in not applicable, state the reason why it is not applicable.

Section 6. Project Description		**Attached** Yes	No
6.1	A narrative description of the scope of the project	☒	☐
6.2	USGS topographic map indicating the exact location of the project (*can be a photographic copy*)	☒	☐
6.3	Photographs of the resource(s) proposed for alteration with location description (*photo locations should be noted on map*)	☒	☐
6.4	A narrative description of the **existing** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.5	A narrative description of the **proposed** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.6	In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points	☐	☒
6.7	A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site	☐	☒

Section 7. Project Rationale	**Attached** Yes	No
Describe the need for the proposed activity, including, but not limited to, the purpose, alternatives considered, and what will be done to avoid or minimize impacts to streams or wetlands.	☒	☐

Section 8. Technical Information		**Attached** Yes	No
8.1	Detailed plans, specifications, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5.x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans should be superimposed on existing and new conditions *(e.g., stream cross sections where road crossings are proposed)*	☒	☐
8.2	For both the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods	☒	☐
8.3	Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alterations	☒	☐

Section 9. Water Resources Degradation (degree of proposed impact) *Note that in most cases, activities that exceed the scope of the General Permit limitations are considered greater than de minimis degradation to water quality.*

My activity, as proposed:

a. ☒ Will not cause measurable degradation to water quality

b. ☐ Will only cause de minimis degradation to water quality

c. ☐ Will cause more than de minimis degradation to water quality (*Complete additional sections 9-11)*

d. ☐ Unsure/need more information

~~For information and guidance on the definition of de minimis and degradation, refer to the Antidegradation Statement in Chapter 0400-40-03-.06 of the~~ Tennessee Water Quality Criteria Rule: https://www.tn.gov/sos/rules/0400/0400-40/0400-40-03.20131216.pdf. For more information on specifics on what General Permits can cover, refer to the Natural Resources Unit webpage at http://www.tn.gov/environment/permits/arap.shtml

If you checked "c." above in Section 9, complete the following 2 sections, 10-11.

Section 10. Detailed Alternative Analysis		**Attached** Yes	No
10.1	Analyze all reasonable alternatives and describe the level of degradation caused by each of the feasible alternatives	☐	☐
10.2	Discuss the social and economic consequences of each alternative	☐	☐
10.3	Demonstrate that the degradation associated with the preferred alternative will not violate water quality criteria for uses designated in the receiving waters, and is necessary to accommodate important economic and social development in the area	☐	☐

Section 11. Compensatory Mitigation		Attached Yes	Attached No
11.1	A detailed discussion of the proposed compensatory mitigation	☐	☐
11.2	Describe how the compensatory mitigation would result in no net loss of resource value	☐	☐
11.3	Provide a detailed monitoring plan for the compensatory mitigation site	☐	☐
11.4	Describe the long-term protection measures for the compensatory mitigation site *(e.g., deed restrictions, conservation easement)*	☐	☐

Certification and Signature

An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official, or other duly authorized employee.

"I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury".

Printed Name	Official Title	Signature	Date
Steven Westerman	Director		7-22-15

Submitting the form and obtaining more information Note that this form must be signed by the principal executive officer, partner or proprietor, or a ranking elected official in the case of a municipality; for details see **Certification and Signature** statement above. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed ARAP Application form (keep a copy for your records) to the appropriate EFO for the county(ies) where the ARAP activity is located, addressed to **Attention: ARAP Processing**. You may also electronically submit the complete application and all associated attachments (e.g., maps, wetland delineations and narrative portions) to water.permits@tn.gov.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Pkwy., Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

OFFICIAL STATE USE ONLY

Received Date:	Permit Number:	Reviewer:	Field Office:
Fee amount paid:	T & E Aquatic Flora and Fauna:	Impaired Receiving Stream:	Application Review:
Date:			☐ Deficient Date:
Check #:	Exceptional TN Water:		☐ Complete Date:

Stormwater Outfall Installation

At The

Existing Wastewater Treatment Plant

For The

Former Brushy Mountain Detention Facility

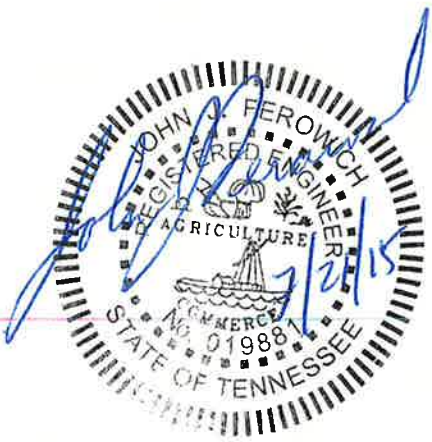
Located In Petros, Tennessee

Morgan County

Supplement to the Aquatic Resource Alteration Application

Sections 6 through 11

Date: July 21, 2015



Owner: Tennessee Department of Correction
6th Floor Rachel Jackson Building
320 Sixth Avenue North
Nashville, Tennessee 37243

Prepared By: Quantum Environmental & Engineering Services
120 Dante Road
Knoxville, Tennessee 37918
Phone: 865-689-1395

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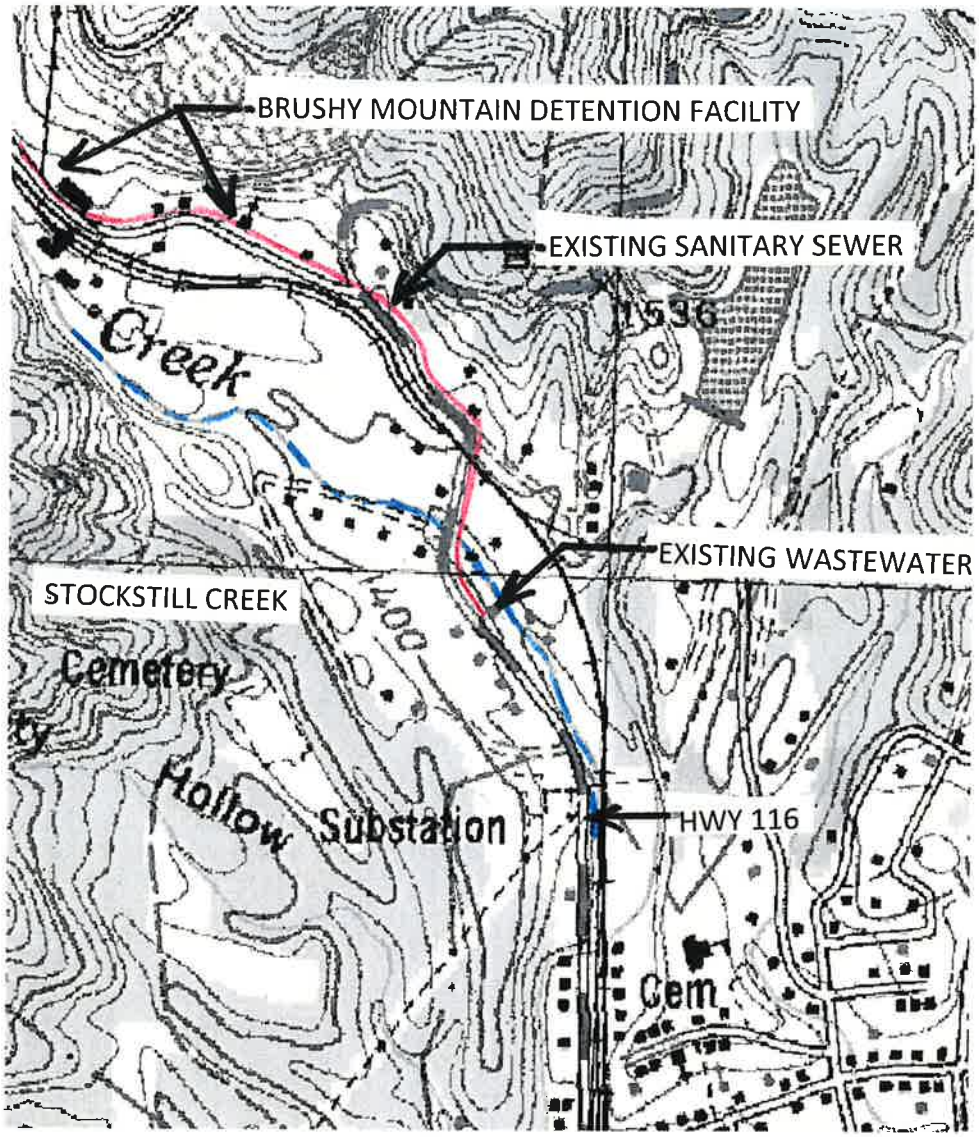
Section 6: Project Description

6.1 Project Description

The purpose of the subject permit request is to install a storm sewer outfall into Stockstill Creek adjacent to the existing wastewater treatment plant that previously served the former Brushy Mountain Detention Facility. This request has resulted from the proposed decommissioning of the existing wastewater treatment plant and the wastewater collection system for the former Brushy Mountain Detention Facility. The plant is located on Highway 116, just south of the entrance to the former Brushy Mountain Detention Facility grounds. The wastewater treatment plant currently is permitted to discharge treated wastewater into Stockstill Creek. The Detention Facility has been closed for several years and it has been determined that the wastewater treatment plant is no longer necessary. It has also been determined through detailed engineering studies, that the existing wastewater collection system has excessive stormwater inflow and infiltration into the system. It is not cost effective to repair the system; therefore, the collection system will be disconnected from the wastewater treatment plant and converted into a storm sewer. All existing sanitary sewer services that previously discharged to the collection system have been disconnected. In addition, in accordance with a request from the local TDEC field office, stormwater samples have been taken from the collection system and tested for applicable contaminants such as coliform. The samples have been determined to be negative; therefore, the system is now ready to be disconnected from the treatment plant and routed directly to Stockstill Creek. The proposed stormwater outfall will consist of a concrete headwall for a twelve inch diameter high density polyethylene pipe, located just outside the bank of the creek. Rip rap will be placed at the outlet of the headwall to prevent erosion.

6.2 USGS Topographic Map

Trails.com
Your guide to the outdoors

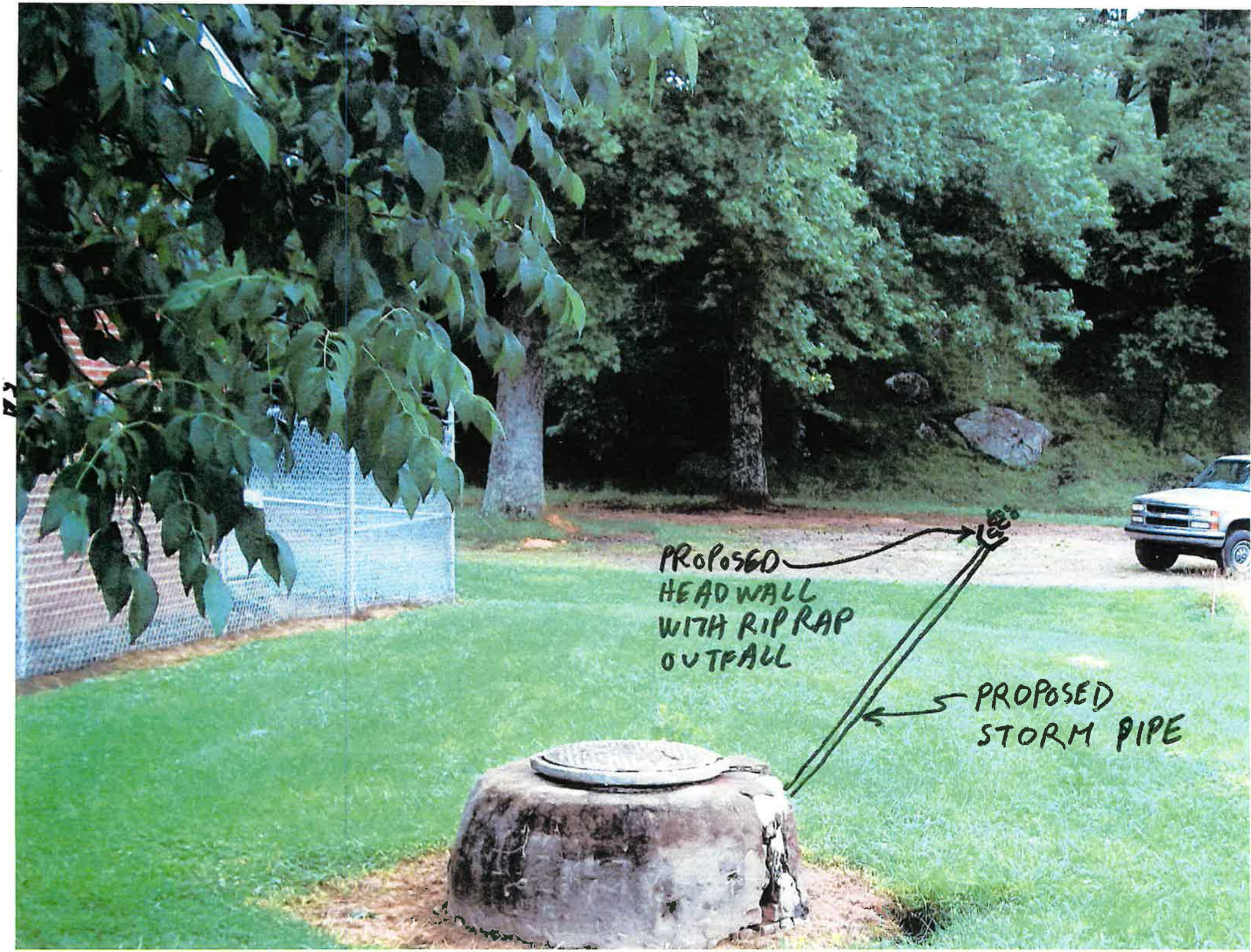


Center: 36.1013°N 84.4466°W
Elevation at center: 1,394 feet (425 meters)
Quad: USGS Petros
Drg Name: o36084a4
Drg Source Scale: 1:24,000

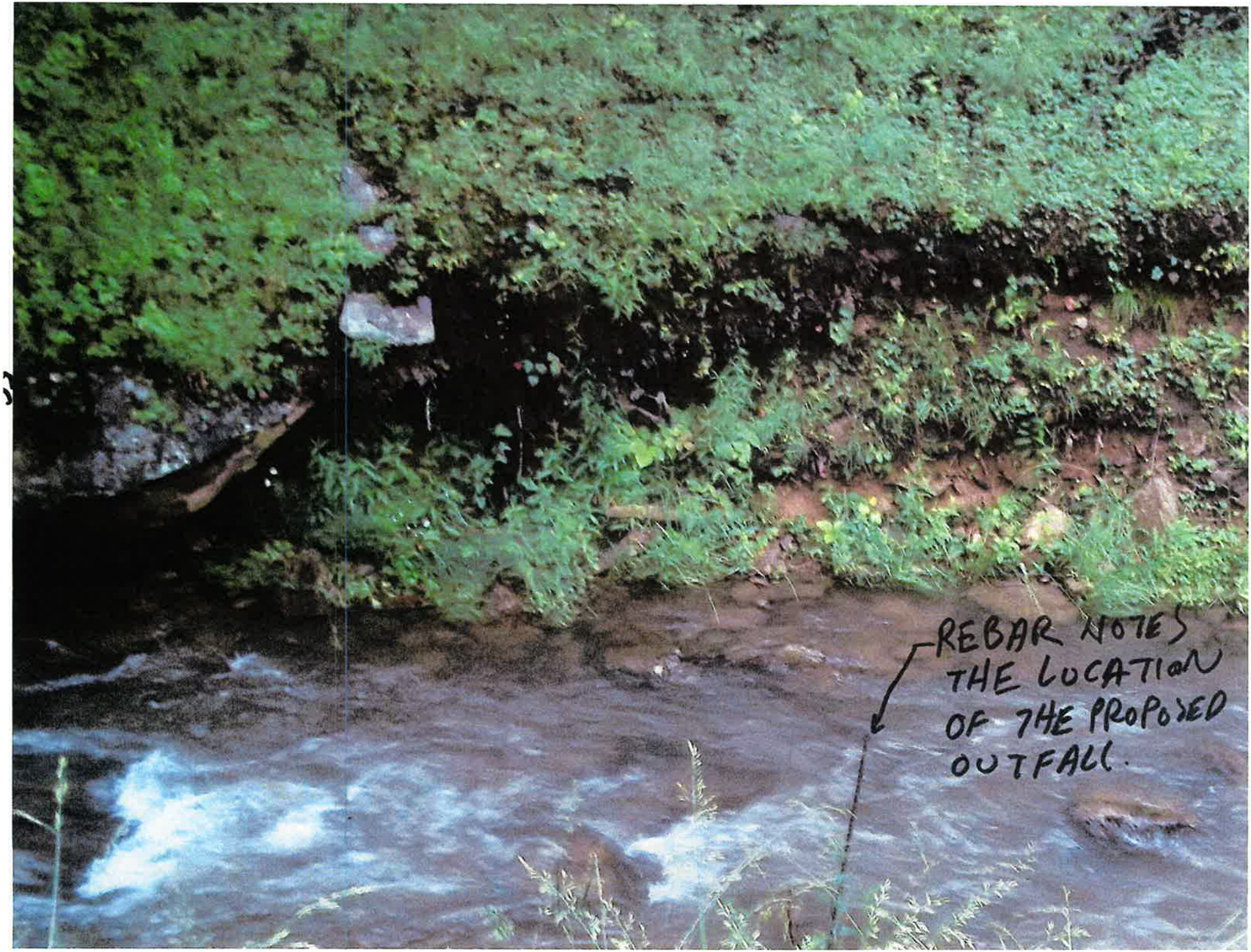
LOCATION MAP

3

6.3 Photographs of the Existing Creek


PROPOSED
HEADWALL
WITH RIPRAP
OUTFALL
PROPOSED
STORM PIPE


REBAR
PROPOSED OUTFALL
LOCATION - AT
REBAR


REBAR NOTES
THE LOCATION
OF THE PROPOSED
OUTFALL.

UPSTREAM OF
PROPOSED OUTFALL

DOWNSTREAM OF
PROPOSED OUTFALL

6.4 Narrative Description of the Existing Creek

The existing creek is approximately 10 feet wide and had a flow depth of approximately 6-inches at the time of this narrative (June 6, 2015). The bottom of the creek consisted of a clay and rubble bottom, with small boulders spread through-out the creek. The sides of the creek had a slope of approximately 1:1 on the near side of the creek and approximately 3:1 on the far side of the creek. There was no vegetation within the creek; however, there was a mixture of grass and weeds along both sides of the creek.

6.5 Narrative Description of the Proposed Creek

There will be no change to the existing creek, other than a cut in the creek bank to allow the new stormwater outfall to enter the creek. The flow energy will be mitigated with rip rap so that the new stormwater flow enters the creek at a non-erosive velocity.

6.6 Wetlands Delineation

There are no wetlands associated with the subject site.

6.7 Hydrologic/Jurisdictional Determination Documents

There are no hydrologic or jurisdictional determination documents associated with the subject project.

Section 7: Project Rationale

7.0 Narrative

The existing sanitary sewer collection system was installed to serve the former Brushy Mountain Detention Facility. The system is very old and experiences significant stormwater inflow and infiltration. An engineering study was performed to evaluate the condition of the collection system, and it was determined that it was not cost effective to repair the system. It has also been determined that the wastewater treatment plant serves no useful purpose; therefore, it is going to be decommissioned. As part of the decommissioning of the plant, the wastewater collection system is to be disconnected from the wastewater treatment plant to eliminate the stormwater flows into the plant. The stormwater flowing into the system will then need to be discharged to the creek.

The alternative to discharging the collection system into the creek, would be to fill the existing sewer lines and manholes with flowable fill to close the system and eliminate all stormwater flows. This alternative would also eliminate the potential for the system to provide a useful purpose to the area, which is collection of stormwater flows to eliminate potential drainage issues in the re-development of the Detention Facility grounds. It is currently proposed to develop a distillery within the old prison walls, and construct a restaurant and gift shop in several other buildings on the prison grounds. As this area develops, the existing wastewater collection system will be a valuable asset to provide off-site drainage of stormwater flows.

Section 8: Technical Information

8.1 Detailed Plans and Specifications

Refer to the following pages for detailed plans and specifications.

8.2 Construction Sequence

The decommissioning of the wastewater treatment plant and the subject wastewater collection system has already begun. All existing services to the collection lines have been disconnected, and the first round of stormwater sampling has been completed. The results of these samples came up negative for all contaminants of concern. Another round of sampling is currently scheduled, and should be completed by the time this ARAP application is received for review.

Upon approval of the ARAP Permit, the Department of Correction will disconnect the collection system piping from the wastewater treatment plant and install a new 12- inch diameter HDPE pipe toward Stockstill Creek. The pipe will not extend into the creek, but rather, it will end outside the banks of the creek, and a concrete headwall will be installed on the end of the pipe. A swale will be excavated through the bank of the creek to allow the stormwater to drain into the creek. This work will all be done in the "dry" to prevent erosion and the discharge of any muddy water into the creek. The swale will be lined with geotextile fabric and covered with rip rap. The sides of the swale above the flow line will be covered with an erosion control fabric and seeded.

8.3 Depiction and Narrative of Erosion Prevention and Sediment Control Measures

The proposed erosion prevention and sediment control measures are illustrated on the attached plan sheets. In summary, the proposed measures will include temporary and permanent measures. The temporary measures required are minimal as this is a linear construction project which will be completed within one work day. The primary concern is to do the work in the "dry", which can be achieved by starting work on a day when there has been no rain for at least 24 hours. If necessary, existing stormwater flow in the collection system will be collected in a lined sump and pumped around the construction area.

The permanent measures include the geotextile fabric and rip rap in the drainage swale to the creek, and the lining of the sideslopes with erosion control fabric and seeding. The fabric will be staked into the slope to prevent failure during storm events prior to the grass taking hold. The area of the pipe trench will be graded, seeded and mulched.

Section 9: Water Resources Degradation

Refer to the Permit Application Form